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ABSTRACT

Addressing many aspects of the use of computers in elementary reading instruction, this annotated bibliography in six sections contains 27 items from the ERIC database from 1987 to April 1989. The first section contains items discussing the pros and cons of such use; the second section deals with organizational aspects of computer use in the schools; and advice for teachers is offered in the third section. The fourth section reviews specific software programs; the fifth section describes and evaluates programs in schools; and the final section samples research. (SR)

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Computers in Elementary Reading Instruction

by Sonja Rasmussen

What is the role of computers in reading instruction? For advocates of computer technology, the issues involve which programs to use and in what ways; for other people, the basic question of the computer's role in education is far from settled. This ERIC *FAST Bib*, in six sections, offers a sampling of over 90 items in the ERIC database from January 1987 through April 1989 dealing with many aspects of the use of computers in reading instruction. Voices calling for caution are represented here, as are those of advocates and users. Interested readers should check the database for further references. Following a discussion of the pros and cons of computers and instruction in the first section, the second section deals with organizational aspects of computer use. Advice for teachers is offered in the third section, while the fourth section reviews specific software programs. The fifth section describes and evaluates projects and programs in schools, and the final section samples research.

The abstracts for most of these entries have been edited to allow for the inclusion of more citations. The ED numbers are included so that the user can go directly to ERIC microfiche collections, order from the ERIC Document Reproduction Service (EDRS), or go to *Resources in Education (RIE)* for information on obtaining those sources not available through EDRS. Some of the most current references on this list have not yet been assigned an ED number. If a document has a CS number rather than an ED number, look in *RIE* or the ERIC database to find the corresponding ED number. The citations to journals are from the *Current Index to Journals in Education*, and these articles can be acquired most economically from library collections or interlibrary loan. Alternatively, reprint services are available from University Microfilms International (UMI) and from the Original Article Tearsheet Service (OATS) of the Institute for Scientific Information.

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Pros and cons

Balajthy, Ernest. "Computers and Instruction: Implications of the Rising Tide of Criticism for Reading Education," *Reading Research and Instruction*, v28 n1 p49-59 Fall 1988.

Examines two major reasons why schools have adopted computers without careful prior examination and planning. Surveys criticisms of computer-based instruction in reading, in an effort to direct attention to the beneficial aspects of computers in the classroom.

Hlebowitsch, Peter S. "Technology in the Classroom: Cautionary Notes on a Recurring Theme," *Clearing House*, v62 n2 p53-56 Oct 1988.

Documents the changes and advances of educational technology in the classroom from the 1960s to the 1980s. Asserts that computers are often used for educationally hollow skill-drill exercises in an "electronic workbook" format. Advocates

caution in educational technology applications, and a focus on idea-oriented learning.

Organizational aspects

Chamberlain, Ed. *Cost-Benefit Analysis for ECIA Chapter 1 and State DPPF Programs Comparing Groups Receiving Regular Program Instruction and Groups Receiving Computer-Assisted Instruction/Computer Management System (CAI/CMS). 1986-87.* Dept. of Evaluation Services, Columbus Public Schools, OH, 1987. 12 p. [ED 287 161]

A cost benefit study was conducted to determine the effectiveness of a computer-assisted instruction/computer management system (CAI/CMS) as an alternative to conventional methods of teaching reading. Findings indicated that the per-pupil cost was greater in the CAI/CMS groups than in the regular groups at all three levels. The CAI/CMS groups surpassed the regular group in achievement at the middle school level and in grades four and five. Findings also indicated that CAI/CMS teachers served more pupils per teacher than did regular program teachers, and that CAI/CMS pupils surpassed regular program pupils in attendance at all levels.

Glenn, Craig. "Results of Using CAI to Improve Performance in Basic Skills Areas," *Technological Horizons in Education,* v15 n10 p61-64 Jun 1988.

Describes the process of acquiring a computer-assisted instruction system by the Linton-Stockton School Corporation (LSSC). Presents the results of a standardized achievement test given to students before and after experience with the system. Emphasizes gains in reading comprehension.

Levin, Henry M.; and others. "Cost-Effectiveness of Computer-Assisted Instruction," *Evaluation Review,* v11 n1 p50-72 Feb 1987.

The cost-effectiveness of four approaches to improving mathematics and reading performance of elementary school children is compared. Peer tutoring is found to be more cost-effective than computer-assisted instruction, and both are more cost-effective than reducing class size or increasing the length of the school day.

Wepner, Shelley B.; Kramer, Steven. "Organizing Computers for Reading Instruction," *Computers in the Schools,* v4 n1 p53-66 Spr 1987.

Presents four steps for integrating computer technology into a school district's reading and language arts curriculum for elementary and secondary schools: (1) needs assessment; (2) planning; (3) implementation; and (4) evaluation. Topics discussed include personnel, budget, facilities, government mandates, computer hardware selection, software selection, and staff development.

Advice

Balajthy, Ernest. *Design and Construction of Computer-Assisted Instructional Material: A Handbook for Reading/Language Arts Teachers.* 1987. 66p. [ED 285 131]

Intended for reading and language arts teachers at all educational levels, this guide presents information to be used by teachers in constructing their own computer-assisted educational software using the BASIC programming language and Apple computers.

Doyle, Claire. "Creative Applications of Computer-Assisted Reading and Writing Instruction," *Journal of Reading,* v32 n3 p236-39 Dec 1988.

Describes an inservice workshop that shows teachers the difference between canned and creative classroom use of computers. Presents an exercise using freewriting, brainstorming, sequencing, and peer evaluation.

Scott, Diana; Barker, Jeanne. "Guidelines for Selecting and Evaluating Reading Software: Improving the Decision Making Process," *Reading Teacher,* v40 n9 p884-87 May 1987.

Focuses on the selection and evaluation of courseware for use with a reading program. Gives examples of courseware to support the ideas presented, together with a sample checklist for software evaluation.

Strickland, Dorothy S.; and others. *Using Computers in the Teaching of Reading.* Computers in the Curriculum Series. 1987. 240p. [ED 281 163] Available from: Teachers College Press, 1234 Amsterdam Ave., New York, NY 10027 ($16.95). Document not available from EDRS.

Shows in 8 chapters how the computer can be used in a reading and language arts curriculum as tool, tutor, and tutee with currently available software.

Software reviews

Balajthy, Ernest. *Computers and Reading: 1984-1989. Selections from "Micro Missive," the Newsletter of MicroSIG, The Special Interest Group for Microcom-*

puters in Reading of the International Reading Association, 1988. [CS 009 340]

Presents eight articles and ten software reviews written by the author for "Micro Missive" since 1984.

Block, Gerald H. "Thinking Networks: Software Reviews," *Academic Therapy*, v23 n1 p61-65 Sep 1987.

"Thinking Networks"—a computer-based (Apple II) reading- writing curriculum—is reviewed favorably for its holistic approach to reading, program sequence and presentation, educational intent and content, and teacher's guide.

Carrasquillo, Angela; Nunez, Dulcinea. *Computer-Assisted Metacognitive Strategies and the Reading Comprehension Skills of ESL Elementary School Students*, 1988. [CS 009 327]

Investigates the effectiveness of two computer-assisted metacognitive strategies (the Tutorial-Direct Monitoring Strategy and the Schema-Direct Monitoring Strategy) on the development of sequential reading skills of 68 ESL fourth grade students in Puerto Rico. Findings appear to confirm that training in metacognitive strategies can enhance reading comprehension performance as well as reading comprehension skills.

Weisberg, Renee; Balajthy, Ernest. "Reading Diagnosis via the Microcomputer (The Printout)," *Reading Teacher*, v42 n8 p636 Apr 1989.

Examines and evaluates microcomputer software designed to assist in diagnosing students' reading abilities and making instructional decisions. Claims that existing software shows valuable potential when used sensibly and critically by trained reading clinicians.

Wilson, Patricia J. "Computer Software: BookBrain. Version 2.0," *Reading Teacher*, v42 n8 p646-47 Apr 1989.

Describes "BookBrain," a newly revised computer software package designed to encourage reading and to help kids select good fiction books. Recommends it for its ease of use, large database of 2,100 titles, comprehensive "getting acquainted" session, and customizing options.

Descriptions and evaluations of school programs

Beazley, Malcolm R. "Reading for a Real Reason: Computer Pals across the World," *Journal of Reading*, Special Issue: New Technologies and Reading, v32 n7 p598-605 Apr 1989.

Describes the Computer Pals across the World Project in which students write and receive letters, poetry, reports, and newspaper articles to and from fellow students around the globe. Argues that it provides a real context for reading and writing, cultural exchange, motivation, and keyboarding skills.

Fiedorowicz, C. A. M.; Trites, R. L. *An Evaluation of the Effectiveness of Computer-Assisted Component Reading Subskills Training*. Education and Technology Series. Ontario Dept. of Education, Toronto, Canada, 1987. 236p. [ED 286 163] Avail. from: MGS Publication Services, 880 Bay St., 5th Floor, Toronto, Ontario, Canada M7A 1N8 ($8.00 Canadian.)

A study evaluates a computer program, the Autoskill Component Reading Subskills Program, used to improve the reading comprehension of 91 reading disabled elementary school students using procedures specifically developed for three reading disability subtypes: oral reading, intermodal-associative, and sequential. Results indicate significant gains in component reading subskills.

Hotard, Stephen R.; Cortez, Marion J. *Using Computer-Assisted Instruction to Raise and Predict Achievement in Chapter I Students*, 1988 . 14 p. [ED 293 104]

Computer-assisted instruction together with remedial reading classrooms for reading and regular classrooms for math has produced 4 years of consistent and significant remedial gains for Chapter I students in grades 5 to 8 in Lafayette Parish, Louisiana. The computer provides a vehicle for daily drill at each child's level which adds significantly to standard classroom remediation. Time spent on computer-assisted instruction is directly related to increased remedial progress. When insufficient time is devoted to daily computer drill, progress is significantly diminished.

Maclay, Connie M.; Askov, Eunice N. "Computers and Adult Beginning Readers: An Intergenerational Study," *Lifelong Learning*, v11 n8 p23-25,28 Jun 1988.

Parents of Chapter 1 reading students were invited to take part in a reading program using courseware for adult beginning readers. A group of 52 parents completed the program; on average they gained more than one year in reading level after 20 hours of instructional time. Impact on children and delivery models are discussed.

Research

Balajthy, Ernest. "What Does Research on Computer-Based Instruction Have to Say to the Reading Teacher?" *Reading Research and Instruction,* v27 n1 p54-65 Fall 1987.

Examines questions typically asked about the effectiveness of computer-based reading instruction, suggesting that these questions must be refined to provide meaningful insight into the issues involved. Describes several critical problems with existing research, and presents overviews of research on the effects of computer-based instruction on achievement and motivation.

Calvert, Sandra L.; and others. "Computer Presentational Features for Poor Readers' Recall of Information." Paper presented at the 96th Annual Meeting of the American Psychological Association, 1988. 22p. [CS 009 364]

Studies 80 children's (kindergarten to second grade) recall of words presented on different versions of a computer presentation with varying levels of visual action and verbal labels. Suggests that older children who have difficulty reading may well benefit from visual action emphasis of computer content.

Gambrell, Linda B.; and others. "Young Children's Comprehension and Recall of Computer Screen Displayed Text," *Journal of Research in Reading,* v10 n2 p156-63 Sep 1987.

Describes a study of third- and sixth-grade students indicating no differences in comprehension between story reading on a page and on a computer screen, and that students were more interested in the story while reading from the screen, but that the story was more difficult in this condition.

Gillingham, Mark G. "Text in Computer-Based Instruction: What the Research Says," *Journal of Computer-Based Instruction,* v15 n1 p1-6 Win 1988.

Discusses and reviews research on text presentation in computer-based instruction.

Greene, Elinor C.; and others. "Effects of New Computer Technology on Increases in Children's Word Recognition Automaticity." Paper presented at the Annual Meeting of the Association for Educational Communications and Technology, 1988. 19p. [ED 295 643]

A study compares the effectiveness of two computer-based techniques (one providing practice in context, the other out of context) for improving word recognition automaticity in third and fourth graders with mild reading difficulties.

MacGregor, S. Kim. "Use of Self-Questioning with a Computer-Mediated Text System and Measures of Reading Performance," *Journal of Reading Behavior,* v20 n2 p131-48 1988.

Studies a computerized-text system (CTS) developed to facilitate students' question-asking during reading. Results suggest that third grade students' use of a CTS to read text and ask questions results in gains in reading performance.

Reinking, David. "Computer-Mediated Text and Comprehension Differences: The Role of Reading Time, Reader Preference, and Estimation of Learning," *Reading Research Quarterly,* v23 n4 p484-98 Fall 1988.

Examines whether readers comprehend a text better displayed conventionally (on printed pages) or computer-mediated (offering the reader access to additional information, or controlling the reader's processing of the text). Comprehension scores were significantly higher for readers of the computer-mediated, computer-assisted texts.

Wheeler, M. Candace. *Correlation between Remedial Students and Learning Styles: Implications for Computer-Assisted Instruction.* Master's Thesis, Eastern Washington University, Cheney, WA. 1988. 45 p. [CS 009 246]

Investigates the learning styles of 31 sixth-grade remedial students and the implications for computer-assisted instruction. Indicates that all subjects had a strong to moderate kinesthetic preference and most had high visual strength. Suggests that computer software which emphasizes problem-solving and simulation will address the particular learning styles of remedial readers.

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